

A designer might be called upon to specify whether learner responses should be interspersed at the end of sub-units of a film, obtained only at the end of the film, or required at the end of some predetermined sub-unit based either on natural units or units stated in terms of the amount of demonstration material which could be assimilated and translated immediately into adequate or perfect performance (Ibid., p. II-58 drawn from Weiss, Maccoby and Sheffield, 1961).

Lastly, the designer needs to consider hardware requirements or what Twelker calls "Machine requirements." Does the student response involve any hardware of any kind? Obviously, this must be considered. This actually leads into Twelker's next step.

Stimulus Situation, Feedback, and Context

(7) Specify the stimulus situation. What is the occasion for the response, or what precedes the response in way of exposure to information or orientation? What form does it take? What media are required? (Ibid. p. II-30)

Once again, Twelker focuses on the two factors of 1) content, and 2) operation. Under content he points out that "...the stimulus situation represents various types of instructional messages or acts presented to the learner (Ibid., p. II-60)." He indicates that several functions may be served by these instructional messages. The functions are:

- 1) Orient the learner to the behavior desired (sense the task);
- 2) Shape behavior;
- 3) Assess whether the learning has occurred (Ibid.)

There are at least six functions that are served by sensitization to the task:

- 1) Student interest is increased;
- 2) Student acceptance and commitment to the task is increased;
- 3) The student is oriented to policies, rules, procedures, purposes, and learning resources;
- 4) A topic is introduced, its importance is indicated, and an overview of the scope is presented;
- 5) Directions on procedures for use in subsequent learning activities are given;
- 6) Recall or prerequisite competencies are stimulated. (Ibid., p. II-61)

Also, there are several purposes served by instructional shaping.

- 1) Knowledge is presented;
- 2) Information about skills, e.g., the process of arriving at a solution to a problem, the process of forming a psychomotor skill, etc., is provided;
- 3) The learner is guided to subsequent steps in the performance of any response;
- 4) Closure to or a solution to a problem is provided;
- 5) Information required to solve a problem or make responses is provided;
- 6) A review or summary of information is provided;
- 7) Practice on a task is provided. (Ibid.)

The last function is assessment. "Assessment gives the instructor an opportunity to monitor the learner's progress. (Ibid., p II-62)"

Next, there are specific strategies and tactics that can be used to accomplish the various functions mentioned. Two strategies Twelker lists are (1) exposure to information; and (2) precipitation of performance (Ibid.). Exposure to information may be through 1) exposition or 2) illustration and demonstration. Exposition may include a) description, b) conceptualization, c) explanation, and d) evaluation, according to Twelker. Six descriptive techniques may be

ed. 1) Analogy, 2) contrast, 3) example, 4) diagram or art, 5) definition, 6) negation (Poletti, 1948). The second general strategy mentioned above was precipitation performance. The two general tactics used are 1) inquiry, and 2) demand. Norris M. Sanders has derived seven types of questions that can be asked from the Taxonomy of Educational Objectives edited by Benjamin S. Bloom (1956). The types of questions Sanders lists are:

- 1) Memory, 2) Translation, 3) Interpretation, 4) Application, 5) Analysis, 6) Synthesis, and 7) Evaluation. (Sanders, 1966, p. 3)

Actually, Twelker's two tactics of inquiry or demand are probably close to Flander's categorization of direct and indirect methods. Twelker's demand seems to be the same as that Flanders means by direct. Twelker suggests that demand can be expressed four ways.

- a) Demand for performance with suggestion, e.g., "I think it would be a good idea to finish the exercise on page 10."
- b) Straightforward demand for performance accompanied by a cushion, e.g., "It may seem like hard work, but I'd like for you to complete the exercise on page 10."
- c) Straightforward demand for performance, accompanied by an explanation, e.g., "If it hadn't been for the fact that we didn't get yesterday's work done, the assignment wouldn't be given. However, for tomorrow, complete the exercise on page 10."
- d) Straightforward demand for performance without qualification, e.g., "Complete the exercise on page 10." (Twelker, 1969, p. II-65).

The second important factor in specifying the stimulus situation is "operation." Twelker sees four things as important re:

- 1) the form of each message; (concrete, iconic, analogue, symbolic)
- 2) anticipation of interactions between learners and/or teachers required;
- 3) strategy used in terms of learning principles;
- 4) machine requirements. (Ibid., p. II-65)

The form of each message is important. Edling (1966)

suggests that "all senses can be employed to provide cues to the learner" with three-dimensional stimuli or concrete

representations. Bruner (1966) says that iconic representation "depends upon visual or other sensory organizations and upon the use of summarizing images."

Iconic representation is principally governed by principles of perceptual organization and by the economical transformations in perceptual organization that Attneave has described - techniques for filling in, completing, extrapolating (Bruner, 1966, p. 11)."

The range of iconic representations has been indicated by Jack Edling (1966, p. 39. His list of representation ranges from "Motion pictures, with illusions of 3-d in color" to "Representational cartoon (minus color)." One of the other types of stimulus representation, analogue representation, requires "...that a learner have associations with the visual stimulus and the object it represents if the visual stimuli is to be associated with the object (Edling, 1966, p. 40)." Actually, analogue representation might be considered one kind of symbolic representation. Many times information is not understood because of the symbolic representation. Words and numbers are symbols. Sometimes lectures fail because the "jargon" is not understood. Many math teachers forget they are teaching another symbol system. This is

ften times why a course in statistics is difficult.

In more concrete terms, a teacher needs to choose whether to use a movie, film strip, audio tape, reading material, simulation game, group discussion, lab experiment, demonstration, some form of lecture, or multi-arts experience. Each choice is appropriate for different needs. Each medium requires special skills in its proper use.

Hudgins (1971) summarizes what he believes to be two important ways of approaching the problem: "Reception learning," and "Discovery Learning." Basically reception learning means that information is organized and presented to students. Discovery learning means students explore more direct experience to gather information for themselves.

Traditional textbooks used to present information in a very organized way so that everything important was presented for the students to learn. All the student had to do was remember what he read. Some newer textbooks, like Discovering American History by Kownslar and Frizzle (1967) present primary and secondary sources. Students read the original sources and draw their own conclusions. Hudgins says, "There appear to be excellent reasons for believing that sometimes one, sometimes the other kind of learning is better suited to the needs of learners (Hudgins, 1971, p. 44)"

Often, the tremendous variety of stimuli that a teacher

can use for direct experience in a classroom is not realized. Multi-arts experiences present stimuli that help children grow in many ways.

Multi-arts experiences provide children with opportunities to explore. Also, they aid in psychomotor, perceptual, cognitive and affective growth. The child is also helped to develop creatively through multi-arts experiences. They help a child to learn about himself and give him opportunities to express himself.

The Experimental Arts Program at Southern Methodist University has found that the multi-arts can help children with many different kinds of problems. Children who usually stutter don't stutter when they are talking through puppets. Puppets, therefore, have become a useful aid in helping children who were severe discipline problems who became involved in making monster costumes. When they were finished, they put on the costumes and acted like monsters. From this followed a discussion of what it was like and how it felt to be a monster. They talked about how people reacted to monsters and how monsters were treated. The conversation came around to the idea that each of these boys was a monster in his own way. Parents were brought in to discuss the effect of these monsters (boys) at home. The boys were relieved and fascinated by the insights they gained from the exchange of information precipitated by making costumes. The costumes provided a stimulus and means for getting at a very important

problem. Gestalt Art experiences have helped older children develop awareness through personal insights achieved by projective kinds of techniques.

In review, there is much more than textbooks and films that can be used for stimuli.

Next is presented a discussion of Twelker's eighth step.

- (8) Specify feedback for each instructional event.
How are you going to tell the learner that his response is correct? What will you tell him?
(Twelker, 1969, p. II-30)

The content of feedback may be of four types:

- 1) information presented to the learner about the appropriateness of his response;
- 2) information presented to the learner that is primarily intended for an effective response from the learner;
- 3) information about the actual correct response;
- 4) information about the rationale or reasons for the correct response; (Ibid., p II-71).

This information may be presented via 1) signal (non-verbal expression, gesture, etc.), 2) word (verbal), 3) objects (M&M's). Generally, some important techniques suggested by Bany and Johnson are:

- 1) Appraisals should be honest and positive.
- 2) The whole classroom group should also be examined for good points.
- 3) Favorable assessments should be communicated directly to the group.
- 4) Statements of facts regarding behavior are better than expressions of teacher feelings.
- 5) Favorable evaluations should relate to behavioral characteristics and not personal attributes.
- 6) Avoid qualifying statements like "You did well today." This implies they didn't do well some other time. (Bany and Johnson, 1970)

The teacher needs to consider a) the form of the feedback message, b) the interactions between learners and/or

teachers required, and c) the strategy used in terms of principles of instruction. These considerations simply raise the point that the teacher can't always be around to give feedback, and the learner better learn to gather information from his environment so he can correct himself.

(Bruner, 1966, p. 70). The student may also get information from learner-learner interaction. Flander's view of indirect teaching may actually suggest a way to direct a learner to other environmental factors besides the teacher.

In considering strategy the question of when, how, what type, and in what quantity feedback should be given arises. If feedback is viewed as being similar to, or at least a kind of reinforcement, then, some answers may be suggested by "Behavior Modification" theory (Millenson, 1967). Feedback can be thought of as a type of reinforcement if White's theory of "competence motivation" is accepted. White believes that the central motive in the growth of children is not food, thirst, physical, or other kinds of drive reduction, but effective interaction with the environment. (White, 1959, p. 318). Since effective interaction (competence) is sought, and can only be achieved through utilization of feedback, it could be considered that feedback would be desired (reinforcing) by the child. If this is the case, reinforcement theory then speaks to the question of quantity and timing of feedback. First of all, there are various kinds of

chedules of reinforcement that can be used: 1) every response can be reinforced, 2) reinforcement can be at fixed time intervals, 3) reinforcement can be at random intervals, 4) reinforcement can be scheduled at variable time intervals, or 5) the schedule can have a uniform probability of reinforcement. An effect:

A schedule is a set of rules specifying: (1) when to establish a reinforcement contingency; (2) how long to keep it in force; and (3) what probability of reinforcement value to assign to it (Millenson, 1967, p.149)

If a student is reinforced (or given feedback) for every response he becomes very dependent upon that reinforcement. If it is stopped he stops responding. If the student is reinforced only at fixed time intervals he doesn't respond in between intervals. For example, students who are only tested and given grades once a semester may loaf until just before the test and then cram like crazy. Reinforcement as random-interval produces a stable and uniform overall response rate. A probability schedule generates extremely high response rates (Brandauer, 1958). In addition:

Intermittent reinforcement, when compared to continuous reinforcement, leads to a substantial increase in the resistance to extinction of the selected response. Thus, reinforcement schedules provide an important technique for increasing behavioral persistence (Millenson, 1967, p.151).

this way, intermittent reinforcement facilitates the development of perseverance. It makes a student less dependent on continuous reinforcement from the teacher. Also, schedules of reinforcement are very obviously procedures that manipulate rates of response...schedules affect such

behavioral properties as topography of response, magnitude of response, the sequential order of responding, and so forth (Ibid., p. 153). Responding was found to be

...extremely stereotyped under continuous reinforcement, somewhat more variable during uniform probability contingencies, and maximally variable in extinction (Millenson, Hurwitz, and Nixon, 1963).

The data appear to support the generalization that variability of behavior appears to increase progressively under the conditions of continuous reinforcement, intermittent schedule, and extinction, in that order (Millenson, 1967, p. 154).

In general, therefore, effective scheduling would include, 1) starting with immediate reinforcement of every response, 2) shifting to intermittent reinforcement, 3) slowly increasing the average length of time between intermittent reinforcements until reaching a point approximating the natural random reinforcement of the environment.

As indicated above, behavior modification theory gives some information about the timing of reinforcements. It also gives information about the type of feedback that will be effective. Reinforcements can be either primary (unconditioned) or secondary, (conditioned). Much of the feedback in the classroom will be secondary. This means that it is learned. So, the instructor must find out if the student has learned enough for the feedback to be reinforcing. For example, some students are not sensitive to social cues such as smiling or praising. Therefore, a teacher praising a

student will not be reinforcing to that student. Some students have not learned that their behavior affects consequences. Therefore, natural consequences will not be effective feedback to change their behavior. Sometimes students cannot discriminate out relevant stimuli from the environment, so presenting the environment, or a representation of the environment (i.e., a video tape replay) will not be effective feedback.

Obviously, the kind of feedback that will be effective is dependent on the student and the situation. As Flanders has pointed out, clarity of goals is important in determining whether to use indirect or direct feedback. Rudolph Dreikurs suggests using natural consequences as much as possible if appropriate.

Robert W. White sees competence motivation as another variable to consider. A student's feeling of competence will affect the kind of feedback he needs.

Whether a child's sense of competence is strong or weak depends on his successes and failures in the past. If his successes overshadow his failures, then his feeling of competence will tend to be high. He will have a positive outlook toward life, seeing almost every new situation as an interesting challenge that he can overcome. If, however, his failures carry the day, his outlook will be more negative and expectancy for satisfying various needs may become low. Since expectancy tends to influence motives, people with low feelings of competence will not often be motivated to seek new challenges or take risks. These people would rather let their environment control them than attempt to change it (Blanchard, Hersey, 1972, p. 34).

The competence motive reveals itself as a desire for task mastery and growth.

Achievement motivation may be another variable to consider. According to David C. McClelland, some people have an intense need to achieve.

...achievement-motivated person is...more concerned with personal achievement than with the rewards of success... He gets a bigger "kick" out of winning or solving a difficult problem than he gets from any money or praise he receives.

A desire by people with a high need for achievement to seek situations in which they get concrete feedback on how well they are doing is closely related to this concern for personal accomplishment...the nature of the feedback is important to achievement-motivated people. They respond favorably to information about their work. They are not interested in comments about their personal characteristics, such as how cooperative or helpful they are. Affiliation-motivated people might want "social" or attitudinal feedback. Achievement-motivated people might want task-relevant feedback. They want to know the score. (Ibid., p. 36).

Much can be said about feedback and reinforcement. Two more points need to be emphasized. First, it is important to move students off artificial, external feedback and shift to natural environmental forms of feedback and reinforcement. Much research has indicated that external (contrived) feedback and reinforcement leave a person dependent upon that kind of feedback. If it is taken away, the person quits. Secondly, content of the feedback must be carefully considered. Too much negative information becomes punishing rather than reinforcing. Also, the values inherent in feedback need to be checked. These two factors taken together can influence results. For example, trainers of seals have used reinforcement schedules to train their seals to do a trick. Consequently, the seal could do one trick until he was trained

to do another. However, by changing the feedback content of the reinforcement the trainers were able to get the seal to make up his own tricks and become highly creative. Instead of reinforcing the seal for doing the trick taught him, the trainers refused to toss the seal a fish until he performed a different trick. The behavior reinforced was "doing something different." Soon the seal had run the full repertoire of what seals normally can be expected to do and invented tricks his trainers never dreamed of, or thought possible.

After consideration of feedback, Twelker suggests:

(9) Specify the required or permissible context of instruction. In what environment does all this take place?

In specifying the context of instruction, Twelker suggests examining 1) Organization and physical characteristics of the learning space, 2) Hardware, and 3) Number of learners,) Learner grouping (Twelker, 1969, p. II-78-80) To this needs to be added, social and psychological climate.

In arranging learning space, Twelker suggests notation of

- a) Space available per learner...
- b) Type of furniture...
- c) Air conditioning - includes heat, cooling, humidity-fying and dehumidifying, air purifying, etc.
- d) Ventilation
- e) Lighting
- f) Proximity to other locations that are deemed desirable and necessary to support instruction (Ibid., p. II-79).

Under hardware Twelker refers to materials, devices, and systems that store or transmit instructional messages.

Storage	Transparency	Transmission	Storage and Transmission
Overhead	Slide	Overhead Projector	Book
Filmstrip	16mm Film	Slide Projector	Magazines
8mm Film	Videotape	Filmstrip Projector	Newspaper
		16mm Film Projector	Encyclopedia
		8mm Film Projector	Bulletin Board
		Videotape Recorder	Display
		Television Set	Chalk Board
Record	Audio Tape	Record Player/radio	Chart
Phone System/	Computer Memory	Tape recorder/radio	Poster
Computer Memory	Instructional Program	Teletype System	Cartoon
	Teaching Machine	Computer Input/	Flat Picture
		Output System	Globe
		Programmed Text	(Ibid.)

As noted, Twelker also suggests looking at the number of learners. As mentioned earlier, small groups are effective up to about seven members. Also, individualized instruction allows students to pursue their own interests at their own pace, but must be interspersed with group interaction.

Adolf Hitler, a very effective controller of groups and individuals, refused to work with medium sized groups of from fifteen to forty members. He claimed that it isn't possible to relate to them as individuals, and yet, they aren't big enough to behave like a group (Hitler, 1944). It seems that people tend to behave one way as individuals and another in large groups. In small groups it is possible to interact with the members as individuals. However, in medium sized groups, members are still individuals psychologically, but can't be treated as such, while in large groups the members feel they are part of a group and can be treated accordingly. This theory suggests that films and lectures be given to groups as large as can still receive the information, while discussions should be limited to groups of no

more than seven.

Another factor mentioned by Twelker about context is consideration of learner grouping. This has already been discussed to some extent. However, further discussion is needed. Grouping is often used to provide for differing learner characteristics. The pros and cons of grouping have been argued for many years. Evidence of research has always seemed inconclusive. In the light of the inconsistent and inconclusive research in the history of this topic, one of the closing comments of a careful study conducted by Borg becomes representational of the problem of trying to draw conclusions on this issue.

The personality data for slow pupils were characterized by a complete lack of consistent differences favoring either treatment. The lack of significant differences on aggression, depression, and inferiority feelings found in the projective phase of the personality study leads us to question some of the dire consequences that have been predicted by critics of ability grouping (Borg, 1965, p. 92)

Another slightly more recent study was summarized as follows:

At least until such times as procedures for more completely individualized instruction become incorporated into school policy and teacher preparation, schools will continue to rely on various kinds of grouping in their attempt to differentiate instruction. It is, therefore, essential to recognize that no matter how precise the selection of pupils becomes or how varied and flexible the student deployment may be, grouping arrangements, by themselves, serve little purpose. Real differences in academic growth result from what is taught and learned in the classroom. It is, therefore, on the differentiation and appropriate selection of content and method of teaching that the emphasis must be placed. Grouping procedures can then

become effective servants of the curriculum (Goldberg, Passow, and Justman, 1966, p. 169)

In analysis studies on grouping by Atkinson and O'Connor (1963) Bryce B. Hudgins (1971) states that the results are "highly tenuous and not easy to accept, since we would expect similar trends to occur in the absence of special treatments (Hudgins, 1971, p. 223).

These results bring to mind some comments by Andrew Weil. He says:

I want to stress the criterion of "usefulness" in evaluating concepts. The aim of scientific inquiry is not to reveal absolute truth but to discover more useful ways of thinking about phenomena. Our ways of thinking... leave us unable to describe, predict, or control the phenomena... Insoluble problems of this sort always indicate erroneous, useless concepts. I believe we can literally think our way out... by changing the concepts... the outmoded ways of thinking... (Weil, 1972, p. 53).

Perhaps the concept of grouping as a solution for meeting individual differences is not useful. Today, schools are moving toward open flexibility. Alternative schools like the Wilson Campus School in Mankato, Minnesota, have ungrouped students from kindergarten to the twelfth grade. Joseph Schulze, the director, claims that the present non-graded program was initiated by the administration refusing to schedule students into classes, to give teachers assignments, or to accept grades. Kids decide what they want to do and make out a contract with a teacher. Teachers still offer instruction, but they get whoever decides they would like to come. Attendance is not compulsory. If no one comes,

the teacher adapts. This school obviously is not grouping anyone - even by age. Of course, this is only one example of one approach to individualized instruction. The important point here is that individualized instruction is another way to meet individual differences.

However, it mustn't be forgotten that students still need to belong to groups. In schools like the one mentioned using individualized instruction, groups may be formed by interest, common need, or because of similar goals. In these cases, the groups are flexible. If students choose to work with people of different ages, they can. If, as Piaget and Kohlberg suggest, some students can be influenced to progress to a higher developmental level through exposure to people on the higher level, they are free to be influenced. Certainly, if some students seek structure while others seek exploration, as Hunt suggests, it is still possible for these students to get separated out. The benefit of individualized instruction is that students can be identified at different times according to different needs. Some needs can be focused for some students, while different needs are focused for others. Therefore, some may be grouped for interest, others because they require structure.

Yates, under the sponsorship of UNESCO (1966) edited a volume of reports on grouping in education. He commented that grouping in schools seems to reflect the values and aims of the community. In effect, the school is a replica of the society.

In general, we would expect that the school system oriented to adaptive changes in society would have: the greatest variety of pupils, the greatest overlap in the use of facilities, and the largest number of functions carried out interdependently. The school whose aim is to maintain the status quo would show the greatest isolation between groups, the least sharing of facilities, and the minimum of contrast among members of different groups (Yates, 1966, p. 94).

It seems that grouping must take the aims and values of the society in account. Individualized instruction as described above might be disastrous in certain cultural settings.

Another contextual factor is the social-emotional climate. Thought should be given to developing cooperation and positive self identity.

In order to foster growth, a human environment should promote cooperation and concern for others. Sue Theroux (1973) summarizes the factors that support the development of cooperation as 1) Trust, 1959; Benton, 1969), 2) obedience to norms of social behavior, 3) Communication (Ibid.) 4) previous common experience (Harrison, 1965), 5) Shared goals (Sherif, 1953) 6) Shared rewards (Nelson, 1969), 7) Necessity of mutual assistance (Ibid.).

In addition, the following list of helpful environmental factors can be derived from Bany and Johnson (1970).

1. The feeling that the group is a good group is more influential in determining unity and cooperation than members liking each other.
2. Unity increases if communication and interaction are encouraged.
3. Acceptance of common goals increases unity and cooperation.

4. Everyone must feel equally an important part or of equal status for a group to be attractive. Cliques and high and low groups make groups unattractive for this reason.
5. It is important to consciously begin to develop unity on the first day.
6. Teacher must provide leadership in focusing and clarifying in problem solving otherwise a group may split into factions or members may become dissatisfied. Leadership style affects morale. Autocratic dictating lowers morale and so does non-structured-no assistance leadership.
7. Small flexible groupings enhance status of individuals.
8. Friendly, supportive relationships are more important to most students than individual achievement.
9. Children only wish to belong to a group if it is attractive. This means that it is possible to have children in a group who do not wish to belong or care whether they are accepted by other members of the group or not.
10. There is more unity and task motivation when the group as a whole receives favorable evaluations than if individual members receive comment on individual performance.
11. It is possible to have low morale even though each child is highly motivated, has abilities needed to achieve, and possesses a healthy attitude. (For example, in competition, each child may wish to be first and this weakens both unity and cooperation.)

Debilitators

1. Unity will decrease if a hierarchy is established. Teachers should be careful with individualized instruction to make sure students don't attain different levels of status. Ability groupings, students teaching students, could cause some students to have a higher status and others to have a lower status.
2. Competitive practices may decrease unity and cooperation.

3. Unity will decrease if there is too little communication and interaction.
4. Unity will decrease if individuals disagree on how to solve problems.
5. A decrease in unity can be caused by some unattractive individuals in groups.
6. Non-cooperation and non-support of individual effort results in poor group morale.
7. Anxiety caused by disapproval, demands that are too great, or poor teacher methods, cause a lowering of morale.
8. In a crisis, if no solution can be found, morale decreases; if a solution is found, morale increases. (Bany and Johnson, 1970)

In considering factors that influence self identity, the human environment mentioned above will be very important. Basically, self identity is influenced by opinions and attitudes of others, and by success or failure experiences. Teacher attitudes are very influential in the development of self image. Rosenthal and Jacobson (1966) investigated the effects of teacher expectancies on learning. Children selected at random from a sample group were purported to be intellectually blooming when they weren't different from comparable students in the sample. Teachers were led to believe that the children would show tremendous gains in the next few months. Eight months later these same children showed gains in I.Q. while the rest of the "non-bloomers" didn't. Rosenthal and Jacobson concluded that the children who gained felt different expectations from their teachers.

In the business setting, Likert (1961) found that a subordinate usually responds well to a superior's high expectations and confidence. Blanchard and Hersey summarize it in his way.

High expectations result in high performance, which reinforces the high expectations and produces even higher productivity. It almost becomes a spiral effect... This spiraling effect can also occur in a downward direction. Low expectations result in low performance, which reinforces the low expectations and produces even lower productivity. It becomes a spiral effect like a whirlpool... (Blanchard, Hersey, 1972, p. 150-151).

Of course, a student's expectations are influenced not only by the expectations of others, but by the sum of his past experience. This indicates the need for success. When child first comes to school,

...in his mind, a child is what his mother and father think he is. He is smart, clever, generous, dull, or awkward as they relate to him what they feel. He is pleased with himself, confident in coping with new tasks, anxious to take the initiative to learn anew each day, if his parents have reflected these feelings and expectations to him.

In the first few years of school, identity is still based primarily on the sense of mutuality between child and adult. Teachers are parent figures to the child... The child's so-called self, his identity, is inextricably bound up in his imagery about who his teachers think he is and what they think he is fitted for. (McNassor, 1965, p. 19).

However, the child's identity base is widened in school.

He is now a worker... There are jobs to be done, skills to be mastered independently, so what he is now will no longer amount to just being himself... (Ibid.)

Erik H. Erikson refers to this as the stage of "Industry vs. Inferiority." This is when:

I am what I learn. The child now wants to be shown how to get busy with something and how to be busy with others... he now learns to win recognition by producing things. To bring a productive situation to completion is an aim which gradually supersedes the whims and wishes of his idiosyncratic drives and personal dis-appointments... The danger at this stage is the development of a sense of inadequacy and inferiority (Erikson, 1959, 50-101)

It is clear then that classroom planning for successes in learning and teacher attitudes toward the child's potentialities to learn are matters of urgency in identity formation in childhood. A child who is not working at least half of the time toward skill mastery and the manipulation of concepts in the study materials must be viewed as in critical danger... he is paying a frightful price in self-depreciation (McNassor, 1965, p. 20).

So, a positive self identity can be formed through positive attitudes on the part of adults, and through success experiences. Below are listed some helpful attitudes and beliefs.

1. Look at a child as a changing, growing, maturing person who need not be and will not be tomorrow what he is today.
2. Exploit the child's urge to learn by prizing his learning as it is found, whether it be found in small drops or large pools.
3. Recognize symptomatic behavior of children as symptomatic rather than malicious.
4. Look carefully at the differences between boys and girls related to achievement and acceptance in the early grades.
5. Provide many opportunities for all children to express their ideas and feelings.
6. Use tests to diagnose each child's achievement... rather than to label children or data to be filed.
7. Stress strengths on which to build.
8. Search for ways to uncap the spring of creativity in the silent child, the fearful child, the withdrawn child.

9. Recognize that a little extra love and attention can often be enough to "save a child."
 10. Avoid ridicule, sarcasm, and other weapons with which adults can diminish the child in his own eyes and those of his peers.
 11. Face the fact that all children have problems some time, while some children live with the same problem every day all day. (Fertschneider, 1965, p. 90).
- Kelly adds:
1. Human beings are the most important things in the world.
 2. Children are people.
 3. Each person is unique.
 4. When any human being is lost or diminished, everybody loses.
 5. Our children are all right when we get them.
 6. Every human being can change and change for the better as long as he lives.
 7. No one of any age does anything with determination and verve without being involved in it.
 8. How a person feels is more important than what he knows.
 9. Freedom is a requirement for humanness.
 10. All forms of exclusion and segregation represent the evil use of power and are evil.
 11. All forms of rejection are evil.
 12. Our task is to build better people.

(Kelley, 1965, p. 7-14)

In speaking of successes, there is, of course, success in human relationships, and success on tasks. Obviously, establishing cooperation and concern for others in the classroom is important for establishing success in human relationships. In order for there to be success on tasks, the tasks

first of all have to be meaningful to the student. If a student isn't involved, motivated, or interested, then accomplishment of the task won't mean anything to him. Joel Levine (1972) stated that "The generation of personal meanings is the process of the education of the self." Arthur Jersild has written that..."the crucial test in the search for meaning in education is the personal implication of what we learn and teach... ..helping the learner to relate himself to what he is learning in a meaningful way (Jersild, 1955)."

Another important factor in helping a child attain success experiences is to guide him to tasks for which he has mastered the prerequisites. Also, the intellectual leap required of him should be small enough that he can manage it. The task should be of fairly short duration and offer immediate concrete feedback so that the student's accomplishment is obvious. As the student progresses, tasks can be made more challenging by requiring more time. Children enjoy working on concrete visible projects which they can share with other students. At least some of the time students should be able to demonstrate their skill to others and get recognition - but only when they are ready.

All of this means that the teacher needs to be careful in selecting materials and projects. There needs to be a great diversity of materials on many different levels. Here individualized instruction using the principles of programmed instruction can be helpful.

The first principle of programmed instruction is that the instructional task be based around behavioral objectives. In this way both the student and the instructor have a concrete basis for determining what is expected and what the results are. A second principle suggests that instruction be validated. This means that it be established that the materials accomplish their instructional purpose for the type of student and level intended for 90% of the students. Other principles are that students should be actively involved, receive immediate knowledge of results, and be able to work at their own pace. This indicates that the instruction should be student centered.

Unfortunately, many people have formed negative conceptions about programmed instruction because of some of the first poorly written linear programs. Today, programmed instruction may include films, simulation games, projects, discussions, readings, lectures and a variety of interactions based around the principles listed above. It is interesting to note, however, that many so-called "slow students," who have not had any success experiences, enjoy working on the step by step paper and pencil linear programs because they are able to be successful.

Basically, programmed instruction (PI) may be defined "a planned sequence of experiences leading to proficiency..." (Spich, Williams, 1967, p. V). Its advantages are:

1. Speed.
2. Flexibility. Training can start anywhere, anytime, and continue 24 hours a day.
3. Consistent results.
4. Enhanced role for teachers. Programmed instruction

can free the teacher from the chores of routine instruction, exercise setting, and marking. Thus the teacher can spend more of his time giving individual guidance and special help (Rowntree, 1966, p. 4-5).

Generally, there are nine learning principles which good programs follow to promote success.

1. The student must be motivated to pay attention.
2. He must be led to the learning goal through a sequence of small steps.
3. The teaching must adapt itself to the needs of the individual student.
4. The sequence of instruction must challenge the student.
5. The student must be given immediate and continuous knowledge of results.
6. The student must be an active participant rather than an active reader.
7. He must be led to discover principles for himself rather than simply be told of them.
8. Meaning must be stressed more than manipulation.
9. Practice must be used chiefly to promote over-learning. (Ibid., p. 48-49).

The role of the teacher in programmed instruction becomes slightly different than in traditional programs. Of course, the teacher's role is still similar in many ways.

1. Administrator (manager of the learning environment). The teacher has to provide enough materials, see that work is corrected, diagnose, provide alternatives, prescribe follow up activities, and do the bookkeeping.
2. Presenter. The teacher must introduce materials, circulate to answer questions, direct follow up discussion, lead in the creation and stimulation of ideas, and may work one to one. Materials generally present information, but there is more to education than information.
3. Student-teacher relationships. Because the teacher is no longer the central dispenser of information he is now free to help individuals. He is free to humanize instruction. He isn't forced to work with groups unless he chooses to. He is freed from routine.

4. Teacher-test relationship. The teacher has criterion tests to use. These are diagnostic tools. They help guide instruction.
5. Testing. The teacher is testing the materials and program instead of the students.

Basically, there are four approaches or kinds of programmed instruction.

1. Linear programming was developed by B. F. Skinner. This was the first programming and is what most people think of when they think of programmed instruction. It uses small steps, requires immediate answers for each step, has a lot of repetition, and requires everyone to go through the same presentation. It takes time and is generally boring.
 2. Discrimination frame also takes everyone along the same path but it requires covert thought. It gives larger amounts of information and checks thinking with multiple choice questions. Sometimes it uses a "Gate" technique of giving pre-tests before sections so that they can be skipped over if already understood. This type of program is less boring and moves much faster.
 3. Branching was developed by Norman Crowder around 1954 when he was asked to investigate the training of aircraft maintenance men. It presents large steps, right and wrong answer pages, remedial referral, and a scrambled test. Basically, then, it provides for multi-tracked instruction.
 4. Adjunct programming refers students to other materials. This is the cheapest and easiest method of programming. It gives directions to read other materials, therefore, uses conventional materials, and then provides questions on the conventional material.
- The current techniques listed above attempt to apply the principles originally listed. Probably the two most basic ideas behind programmed instruction are, 1) active

involvement, and 2) reinforcement. The student first needs to focus on a goal to attain, and then needs to become actively involved in its attainment. Direct feedback provides reinforcement for the learner and a feeling of success. "There's nothing very rewarding even about success, when that success seems to depend entirely on the actions of other people (Rowntree, 1966, p. 39.)" Programmed instruction must be challenging and the learner must receive immediate knowledge of results.

In the words of Froebel:

To have found one-fourth of the answer by his own effort is of more value and importance to the child than it is to half-hear and half-understand it in the words of another (Ibid., p. 43).

Sequence

In step ten, Twelker states:

(10) Specify the appropriate sequence for each instructional component to ensure optimal mediational effects from one component (i.e., response, stimulus, or feedback) to another. How responses, stimuli, and feedback are put together can't be ignored (Twelker, 1969, p. II-30).

In considering sequence, Richard Allan suggests six possible sequences that might be appropriate.

- 1) Order of steps inherent in a task
- 2) Logical, chronological
- 3) Psychological
- 4) Whole-part-whole
- 5) Simple to complex
- 6) Random

In teaching a person how to water-ski, for example, an instructor might tell the student to 1) squat down in the water, 2) place the ski rope between his legs, 3) straighten arms, 4) lean back keeping skis parallel and tips out of the water, 5) bend legs and be prepared to hold position while pushing against the water, 6) let the boat pull you up, 7) once up, straighten back, keep arms straight, legs slightly bent. This sequence of instruction is in the order of steps to be taken in the task (1).

A chronological sequence might be taken for U. S. History. In teaching music appreciation to junior high students a phycho logical sequence might be used by beginning with "rock" music and then relating different elements and styles to their precedents in the historical development of music.

Meanwhile, the music teacher might teach dance using a whole-part-whole sequence. First, the teacher would show the students the new dance and then break it down into its component parts, and when the students have mastered the various parts they would put the whole dance together. Drama teachers often use this sequence by having students read and discuss the whole play, then rehearse each scene, and then put the whole thing together.

Reading might use a simple to complex sequencing.

Random sequencing might be illustrated by random exploration and trial and error. Some people suggest that creative writing in high school should be taught using an

approach which has a random sequence inherent in it. The suggestion is that the students should just be asked to write every day without the writing even being corrected or read by the teacher. When the student finally writes something that he likes, then, he takes it to the teacher. The teacher reads it and points out whatever strengths there are and has the student place it in a folder. In using this approach, whatever the students learn is not going to be in any particular sequence.

After specifying characteristics of the learner and the system, learning function, strategy, and response, stimulus situation, feedback, and context, and sequence, Twelker suggests:

For each instructional sub-system and instructional system as a whole,
 (11) Specify the required or permissible context of instruction, considering the relationships and specifications previously identified. Now that the instructional conditions for each objective have been specified, take a new look at the tentative specifications listed from steps 2 and 3. Adjust accordingly (Twelker, 1969, p. II 30-31).

This step is one of looking over the whole instructional system that has been planned and searching for discrepancies.

(12) Specify the appropriate sequence of all instructional units to ensure optimal mediational effects from one unit and one sub-system to another. Once this is done, sit back and relax. If you have done your job well, your blueprints can now be used by someone else or yourself to build an instructional system (Ibid.).

This completes the designing of an instructional system. It has involved planning for learner characteristics, characteristics of the instructional system, the relationships

between characteristics, learning function, instructional strategies, learner response(s), stimulus situation, feedback, context, and sequence.